

automatically following a start of play request during play of said master segment mixer.

38. The system of claim 35, wherein said master segment mixer beat information is exported to at least one external device.
39. The external device of Claim 37, wherein said external device is Video equipment (VJ) whereby the video projected synchronizes with the music beat.
40. The external device of Claim 37, wherein said external device is Lighting equipment whereby the lighting effects synchronizes with the music beat.

#### **REMARKS - General**

Applicant has rewritten all claims to define the invention more particularly and distinctively so as to overcome the technical rejections and define the invention patentability over the prior art.

#### **The Objection To The Drawings**

In the last O.A. Drawing 5 was objected to as failing to comply with 37 CFR 1.84(p)(5) because it includes the following reference character(s) not mentioned in the description: "Figure 5, reference number 501".

An amendment to the specification has been added to reference the character(s) in the description in compliance with 37 CFR 1.121(b). This amendment is the first amendment, regarding page 4 paragraph 79 above.

#### **The Objection To The Specification**

The last O.A. the specification has been objected to because of the following informalities: In paragraph 79, the sentence that begins with “In play mode “loop”...” needs to be revised.

An amendment to the specification has been added to correct this informality. This amendment is the second amendment, regarding page 4 paragraph 79 above.

### **The Objection To The Claims Rejection Under § 112**

The specification objected to under § 112 for claims 10 and 11 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 10 and 11 recite the limitation “the track database” in the first line of both claims. There is insufficient antecedent basis for this limitation in the claim.

Claims 10 and 11 have been rewritten as new claims 32 and 33 to overcome the objection as stated above.

Accordingly applicant submits that the specification does comply with § 112 and therefore requests withdrawal of this objection.

### **The Objection To Claims Rejection Under § 102**

The last O.A. rejected claims 1, 7, 10-13 as being anticipated by US patent application publication to Williams (US 2002/0091455).

### **The Rejection Of Claim 1, On Williams Is Overcome**

The last O.A. rejected independent claim 1 on Williams. Claim 1, has been rewritten as new claims 18, 19 and 20, to define patentably over this reference. Applicant requests reconsideration of this rejection, as now applicable claims 18, 19 and 20 for the following reasons:

- (1) Williams does not have a track segmentor segmenting a track into sub-track portions according to time.
- (2) Williams does not have a means to play track segments consecutively one each time during play.
- (3) Williams does not have a track database made up of a sequence of track segments prepared to be played in sequence or shuffled to create track variations.
- (4) These novel physical features of claims 18, 19 and 20 produce new and unexpected results and hence unobvious and patentable over this reference.

#### **The References And Differences Of The Present Invention Thereover**

Prior to discussing the claims and the above four points, applicant will first discuss the reference and general novelty of the present invention and its unobviousness over the reference.

**Williams** teaches a system, which includes data files on a database, which are characterized as a primary track data file or an accompaniment track data file. The mixer mixes into a single data file one primary track data file with at least one accompaniment track data file. Selected ones of the plurality of data files are mixed together according to user selection. Mixing selected ones of the plurality of data files together mixes at least two data files selected by a user from the database. [11, 12] Thus Williams system does not handle the cutting of a single track into track segments according to time (or track sections, or track portions) in a manner so that the adjacent track segments played consecutively sound audible to the human ear. Williams database does not include collections of track segments to be played consecutively one after the other by default or be shuffled by a user and played consecutively one after the other to create a track variation. Instead Williams database includes full length tracks (primary and accompaniment tracks) to be played simultaneously by mixing them together at the same time. Thus Williams does not represent a single track by a plurality of track segments each representing a full portion of the original track for a period of time . The general novelty of the present invention includes piecing consecutive track segments one after the

other with no gaps or overlaps so that a default sequence (perhaps making up a complete track) is loaded from the database and played. In addition the actual segments may also be played in a non-default sequence by changing the sequence of the played segments during play. Please note that the term ‘mixer’ in Claim 18-20 refers to the consecutive playing of two segments one following the other and not a mix where two tracks are played simultaneously at the same time.

The last O.A. notes that Williams’ system does the following

- (1) segments tracks into parts or separate files
- (2) comprising a track database that houses these separate files
- (3) comprising a mixer to mix these separate files into one track

However Williams’s system does not segment a single, complete track into separate parts or files representing entire specific portions of the track for a time duration shorter than the track (or sections of the track). Instead, Williams’s system deals with a collection of full-length tracks, which are created to be mixed (or played simultaneously) with other tracks and not segmented in any way.

The Track database in Williams system does not house a collection of segmented files prepared to be played in sequence. Rather Williams database houses a collection of tracks where one is a primary track and others accompaniment tracks. (Such as a main song and additional orchestrations/backing vocals etc).

The mixer in Williams system does not play the tracks in the database consecutively one at a time but mixes the primary and accompaniment track(s) together at the same time.

#### **Williams’s system does not include a track segmentor segmenting a track in time**

With regards to Williams’s system, it does not include a track segmentor to segment a track into separate full-track segments for a short time duration each (or track sections). According to claim 18, track segments are created by track segmentor.

These track segments are used to create a track formed by claim 18. Track segmentor specifically makes track segments so that when segment mixer plays these segments consecutively one following the other, the created track sounds audible and acceptable to the human ear. Williams's system does not take a track and segment it into parts in time. Williams's system does not include any track that is being segmented. Instead Williams describes a primary track and at least one but usually more than one accompanied tracks that may be mixed together at the same time. In Claim 18-20 there is no primary track. In fact only one segment is played at any one time by the segment mixer. Claim 18 has a novel feature of creating track-segments segmented according to time for use by a segment-mixer function to play these segments one at a time consecutively which Williams does not present. This capability shows novelty over Williams.

Thus applicant submits that the invention is much more than merely playing separately prepared audio tracks simultaneously and that claim 18-20 clearly recites novel physical subject matter which is distinguished over Williams.

**Williams system does not have a means to play track segments consecutively one each time during play**

With regards to Williams system, it does not have a means to play track segments consecutively one each time, where segments are dynamically chosen during play. The capability to play segmented tracks consecutively, one each time create the track formed by claim 18. This track is dynamically formed during play by choosing segments during play. Claim 19 adds so that no gaps or overlaps occur during play. Segment mixer of claim 18 and 19 plays track segments consecutively one after the other and allowing choosing segments dynamically during play. By playing the track segments consecutively one after the other, the segment mixer creates the desired track according to claim 18 and 19. Williams's system does not play track segments consecutively one at a time, allowing a dynamic selection of segments during play. Instead, Williams's system simultaneously plays a primary track and at least one but

usually more than one accompanied track. Claim 18 and 19 has a novel feature of playing track segments consecutively one after the other with no overlaps or gaps and allowing to choose segments during play which Williams does not present. This capability shows novelty over Williams.

Thus applicant submits that the invention is much more than merely simultaneous playing of audio tracks chosen in advance in a static manner during the entire track and that claim 18 and 19 clearly recites novel physical subject matter, which is distinguished over Williams.

**Williams system does not have a track database made up of a sequence of track segments prepared to be played in sequence or shuffled to create track variations**

Williams system does not have a track database made up of a sequence of track segments prepared to be played in sequence or shuffled by user to create track variations. According to claim 20, track database of claim 18 comprises at least one sequence of a plurality of track elements. These track elements are created by track segmentor, which segments a track into track segments of short duration. These track elements can be loaded to be played by the segment mixer in their default sequence, or in other sequences as may be chosen by user during play to create a variation. The segment mixer plays these track segments consecutively one at a time, with no gaps or overlaps. Williams's database does not include a sequence of track segments to be played in sequence or in other varied sequences. Instead, Williams's system simultaneously plays a primary track and at least one but usually more than one accompanied track. Claim 20 has a novel feature that its database includes sequences of track segments prepared to be played in sequence and not simultaneously as in Williams's system. This feature shows novelty over Williams's system.

Thus applicant submits that the invention is much more than merely playing chosen audio tracks simultaneously and that claim 20 clearly recites novel physical subject matter which is distinguished over Williams.

**The novel physical features of claims 18, 19 and 20 produce new and unexpected results and hence unobvious and patentable over this reference under § 103.**

Also applicant submits that the novel physical features of claim 18, 19 and 20 are also unobvious and hence patentable under § 103 since they produce new and unexpected results over Williams.

These new and unexpected results are the ability of applicant's system to segment a track into track segments by cutting track to short time frame durations, storing the track segments in a database and playing these track segments consecutively one after the other with no gaps or overlaps to create a track. Applicant's system therefore is vastly different to that of Williams and presents new and unexpected results. The novel features of applicant's system which erect these differences are, as stated, clearly recited in claims 18, 19 and 20.

#### **The Rejection Of Claim 7, On Williams Is Overcome**

The last O.A. rejected independent claim 7 on Williams. Claim 7, has been rewritten as new claim 29 to define patentably over this reference. Applicant requests reconsideration of this rejection, as now applicable claim 29, for the following reasons:

- (1) Williams does not have a track representation using track segments segmenting a track into sub-track portions according to time.
- (2) Williams does not have a track representation containing a default track segments playing order.
- (3) Williams representation does not include a track segments collection without a primary track / accompaniment track characterization

(4) This novel physical feature of claim 29 produce new and unexpected results and hence unobvious and patentable over this reference.

#### **The References And Differences Of The Present Invention Thereover**

Prior to discussing the claims and the above four points, applicant will first discuss the reference and general novelty of the present invention and its unobviousness over the reference.

Williams teaches a method representing a track and its segments or separate part files, which provide the building blocks to further create a unified track. The data files stored on the database are characterized as a primary track data file or an accompaniment track data file. [11] The mixer mixes into a single data file one primary track data file with at least one accompaniment track data file [12]. Thus Williams represent a track along with other segments to be played simultaneously together to create a unified data track.

Williams does not represent a track as a collection of track segments to be played consecutively one after the other by default or be shuffled and played consecutively one after the other to create a track variation. Instead Williams represents a track by a collection of full-length tracks (primary and accompaniment tracks) to be played simultaneously by mixing them together at the same time. Thus Williams does not represent a single track by a plurality of track segments each representing a full portion of the original track for a period of time within the original track. Furthermore, Williams does not present a default order to play track segments, to form a basis of track variations. The general novelty of the present invention includes a representation of a track by a plurality of track segments, each of a time portion of the original track. This representation of a track allows variations in the playing order of these track segments and therefore the novelty of claim 29.

The last O.A. notes that Williams teaches a method representing a track and it's segments or separate files, which provide the building blocks to further create a unified data track.

However Williams does not represent a track as a collection of track segments that contain the entire track contents for a short time duration each. Instead Williams represents a track as a collection of full-length tracks, which are created to be played simultaneously with other tracks and not segmented in any way. This representation does not allow for the creation of a track variation as in claim 29, by changing track segment order.

Furthermore, Williams does not represent a track without a primary track or accompaniment track characterization. Instead Williams requires this characterization for each track.

**Williams does not have a track representation using track segments segmenting a track into sub-track portions according to time**

With regards to Williams representation of a track, Williams does not represent a track as a collection of segmented tracks which are sub-track portions of the original track for a short period of time. Rather Williams represents a track as a collection of tracks where one is a primary track and others accompaniment tracks. (Such as a main song and additional orchestrations/backing vocals etc). Claim 29 has the novel feature of representing a track by track segments which form subsections of original track. These sub sections or track segments can then be plated at different orders to create a track variation.

Thus applicant submits that the invention is much more than merely representing a track by separately prepared audio tracks to be simultaneously played and that claim 29 clearly recites novel physical subject matter which is distinguished over Williams.

**Williams does not have a track representation containing a default track segments playing order**

With regards to Williams representation of a track Williams does not represent a track as a collection of segmented tracks which are sub-track portions of the original track for a short period of time. Rather Williams represents a track as a collection of tracks where one is a primary track and others accompaniment tracks. Since a primary track represents an entire full-length track according to Williams, Williams does not include any default order of sub-tracks to be played but a full static primary track that cannot be changed.

Thus applicant submits that the invention is much more than merely representing a track by separately prepared audio tracks to be simultaneously played, and with static primary tracks, which cannot be changed and that claim 29 clearly recites novel physical subject matter which is distinguished over Williams.

**Williams representation does not include a track segments collection without a primary track / accompaniment track characterization**

With regards to Williams representation of tracks, It is stated in Williams publication “The data files stored on the database are characterized as a primary track data file or an accompaniment track data file.” [11]. This characterization is then used by Williams system “The mixer mixes into a single data file one primary track data file with at least one accompaniment track data file” [11]. The track representation of claim 29 where a plurality of track segments segmenting an original track according to time, does not include a characterization of a primary and accompaniment track. This representation cannot therefore be made by Williams representation. The track representation of claim 29 creates new possibilities to create new tracks and new track variations not possible with Williams representation. For example by playing the track segments consecutively in different orders. Furthermore the track representation of claim 25 creates the possibility to determine the BPM of each track segment automatically, (and use that information to mix two separate track segments playing) as stated in applicant patent [74].

Thus applicant submits that the invention of track representation is much more than merely representing a primary track with accompaniment tracks but a representation that creates a multitude of new possibilities to create new tracks, new track variations and extract BPM information and that claim 29 clearly recites novel physical subject matter which is distinguished over Williams.

**This novel physical feature of claim 29 produce new and unexpected results and hence unobvious and patentable over this reference.**

Also applicant submits that the novel features of the unique track presentation of segmented track according to time of claim 29 is also unobvious and hence patentable under § 103 since it produces new and unexpected results over Williams.

New and unexpected results are made with the representation of the track by track segments, which are short time segments of a track. This representation enables to consecutively play track segments in a plurality of orders, deduce each segment BPM separately and use this information to simultaneously play and beat-match two separately playing track segments.

#### **The Rejection Of Claim 10, 11, On Williams Is Overcome**

The last O.A. rejected independent claim 10 and 11 on Williams. Claim 10 and 11 have been rewritten as new claims 32 and 33 to define patentably over this reference.

Applicant requests reconsideration of this rejection, as now applicable claim 32 and 33, since now claims 10, 11 are dependent on claim 29 which defines patentably over the reference.

#### **The Rejection Of Claim 12, On Williams Is Overcome**

The last O.A. rejected independent claim 12 on Williams. Claim 12, has been rewritten as new claims 34, 35 and 36 to define patentably over this reference. Applicant requests

reconsideration of this rejection, as now applicable claim 34, 35 and 36, for the following reasons:

- (1) Williams system does not allow a coupling means for simultaneous playing (or mixing) of different tracks with different BPM rates during play
- (2) Williams system does not allow a coupling means for simultaneous playing (or mixing) of different tracks where each track is made up of a plurality of segments which may be chosen dynamically during play
- (3) Williams system does not allow a coupling means for simultaneous playing (or mixing) of different tracks where each track is made up of a plurality of segments which may be chosen dynamically during play where each segment may contain a different BMP rate.
- (4) These novel physical features of claims 34-36 produce new and unexpected results and hence unobvious and patentable over this reference.

#### **The References And Differences Of The Present Invention Thereover**

Prior to discussing the claims and the above four points, applicant will first discuss the reference and general novelty of the present invention and its unobviousness over the reference.

**Williams** teaches a system which includes data files on a database which are characterized as a primary track data file or an accompaniment track data file. The mixer mixes into a single data file one primary track data file with at least one accompaniment track data file. Selected ones of the plurality of data files are mixed together according to user selection. Mixing selected ones of the plurality of data files together mixes at least two data files selected by a user from the database. [11, 12] Williams discusses the importance of track synchronization in [71]: “Synchronization of is a critical piece of the technical solution, especially for music” However Williams specifically states that server assumes tracks are “supposed to be in beat with each other” and that synchronization is made by “padding in the front is applied to synchronize tracks”. This is taken from [76]

Thus Williams system does not teach how to couple (or simultaneously play or mix) two tracks with different BPM rates. Furthermore, Williams does not teach how to couple tracks made up of different segments during play, and Williams does not teach how to couple tracks during play, where each track is made up of different segments where segments within one track may contain segments with different BPM rates.

Instead Williams database includes full length tracks (primary and accompaniment tracks) which are "supposed to be in beat with each other" [76] (or containing the same BPM) to be played simultaneously by mixing them together at the same time. Thus Williams does not represent a single track by a plurality of track segments each representing a full portion of the original track for a certain period of time. Each of these segments in itself may have a different BPM and may require beat change to combine with other playing segments. The general novelty of the present invention includes coupling of two playing systems that play consecutive track segments and allowing each system to change the order of segments played in real time. These systems may also be coupled even when these systems are not started at the same time and the systems may be coupled by playing segments containing different BPM rates.

The last O.A. notes that Williams' system does the following

1. teaches a system with a track database with separate segments being master (primary track) or slave (accompanied track) being coupled to form a single track.

However Williams' system does not use track segments that may be chosen dynamically during play but complete single tracks to be coupled together. Furthermore Williams' system does not beat-sync tracks of different BPM rates. Williams' system does not allow the initiation of playing a slave track during the playing of a master track. Williams' system does not teach how to play tracks with segments including different BPM rates or how to couple or beat-mix such a track segment with another playing track segment.

**Williams system does not allow a coupling means for simultaneous playing (or mixing) of different tracks with different BPM rates during play**

With regards to Williams coupling of primary and accompanied track, Williams requires tracks on server to be in beat with each other. As stated “when the server side mixing software goes about its job of taking the first byte of File1 and then the first byte of File2 etc. it will actually be carving out musical content that is supposed to be in beat with each other” [76] Williams does not present, nor attempt to show a manner to beat-synchronize different playing tracks simultaneously. Williams does mention some form of synchronization on the client side as a ‘Sync Factor’ [74] but in [75] this ‘sync factor’ turns out to be a padding in front of the secondary track: “the secondary track is padded”[75]. This continues in the next paragraph: “This unique padding of the front portion of the file...” which again explains the synchronization is made at the beginning of the file. Williams therefore does not allow a coupling means for beat-mixing (or simultaneous playing of different tracks with different BPM rates. This feature is possible with the present invention and is claimed by claim 34-36. In claim 35, at least two segment mixers are playing segments sequentially. There exists two segments with different BPM rates that play simultaneously in these segment mixers. The coupling means synchronizes these two segment mixers to match their BPM rates automatically. Claim 35 has a novel feature of mixing or simultaneously playing two or more track segments simultaneously where their beat is matched (or coupled, or synchronized) which Williams does not present. This capability shows novelty over Williams.

Thus applicant submits that the invention is much more than merely playing separately prepared audio tracks simultaneously and that claims 34-36 clearly recites novel physical subject matter which is distinguished over Williams.

**Williams system does not allow a coupling means for simultaneous playing (or mixing) of different tracks where each track is made up of a plurality of segments which may be chosen dynamically during play**

With regards to Williams coupling of primary and accompanied track, Williams requires entire primary and accompanied to track to fully exist on the database prior to their

coupling. “Server 12 is communicated with a track database 20 and a mixer module 22 in which multiple tracks stored in database 20 provided by client 16 or otherwise preloaded into database 20 may be mixed into a single music track” [35] These preloaded tracks are entire single tracks. Williams does not present a manner to build a track from track segments and couple two or more such tracks together. This feature is possible with the present invention and is claimed by claim 34. Furthermore, Williams does not present how to dynamically choose track segments for each track and dynamically change each track contents while tracks are being coupled or mixed. The coupling means synchronizes these two segment mixers allowing the dynamic property to choose different orders of track segments for each track. Claim 34 has a novel feature of mixing or simultaneously playing two or more track segments simultaneously where each track can be dynamically changed, which Williams does not present. This capability shows novelty over Williams.

Thus applicant submits that the invention is much more than merely playing separately prepared audio tracks simultaneously and that claims 34-36 clearly recites novel physical subject matter which is distinguished over Williams.

**Williams system does not allow a coupling means for simultaneous playing (or mixing) of different tracks where each track is made up of a plurality of segments which may be chosen dynamically during play where each segment may contain a different BPM rate.**

With regards to Williams system coupling of primary and accompanied track, Williams requires tracks on server to be in beat with each other (as stated in par. 76) as well as the requirement for entire primary and accompanied track to fully exist on the database prior to coupling and obviously contain a single BPM for the entire track each, (from above, see [35]). Williams does not teach how to mix different tracks, which may contain different BPM segments each, as presented by claim 35. Furthermore, Williams does not present how to dynamically choose track segments for each track and dynamically change each track contents while tracks are being coupled or mixed. The coupling means

synchronizes these two segment mixers allowing the dynamic property to choose different orders of track segments for each track, while the BPM rates of the played track segments are matched automatically during play. Claim 35 has a novel feature of mixing or simultaneously playing two or more track segments simultaneously where each track can be dynamically changed, and the BPM of the played segments may be different. Williams do not present this capability. This capability shows novelty over Williams. Claim 36 has the novel feature of playing segments containing a different BPM one after the other, while the coupling means synchronizes these segments with the master segment mixer.

Thus applicant submits that the invention is much more than merely playing separately prepared audio tracks simultaneously and that claims 34-36 clearly recites novel physical subject matter which is distinguished over Williams.

**These novel physical features of claim 34-36 produce new and unexpected results and hence unobvious and patentable over this reference**

Also applicant submits that the novel features of the unique track coupling of track segments of claims 34-36 are also unobvious and hence patentable under § 103 since they produces new and unexpected results over Williams.

New and unexpected results are made with the ability to simultaneously play two tracks made up of different segments chosen during play, where track segments may have different BPM rates. These different BPM rates may even occur within a single track dynamically playing segments of different BPM rates. This coupling (or beat mixing) is made possible with the unique representation of the track segments which are short time segments of a track. This representation enables to consecutively play track segments in a plurality of orders, deduce each segment BPM separately and use this information to simultaneously play and beat-match two separately playing track segments.

### **The Rejection Of Claim 13, On Williams Is Overcome**

The last O.A. rejected dependent claim 13 on Williams. Claim 13, has been rewritten as new claim 37, to define patentably over this reference. Applicant requests reconsideration of this rejection, as now applicable claim 37, for the following reasons:

1. Williams's system does not teach how to play a slave or accompaniment track in accordance to the beat start where playing of a slave track initiates during playing of primary track
2. Williams's system does not teach how to play a slave or accompaniment track in accordance to the beat start where playing of a slave track initiates during playing of primary track where slave track is of a different BPM to primary track.
3. These novel physical features of claim 37 produce new and unexpected results and hence unobvious and patentable over this reference.

### **The References And Differences Of The Present Invention Thereover**

Prior to discussing the claims and the above two points, applicant will first discuss the reference and general novelty of the present invention and its unobviousness over the reference.

**Williams** teaches a system which includes data files on a database which are characterized as a primary track data file or an accompaniment track data file. The mixer mixes into a single data file one primary track data file with at least one accompaniment track data file. Selected ones of the plurality of data files are mixed together according to user selection. Mixing selected ones of the plurality of data files together mixes at least two data files selected by a user from the database. [11, 12] Williams discusses the importance of track synchronization in [71]: “Synchronization of is a critical piece of the technical solution, especially for music” However Williams mentions synchronizations of two tracks only at the beginning of the primary track. Williams teaches how to

synchronize a track by padding which is applied at the beginning of the accompanied track only and specifically states the mix between primary and accompanied track starts from the first byte of the primary track: “This unique padding of the front portion of the file...allows it to be synchronized to the primary track which always remains unchanged. Therefore when the server side mixing software goes about its job of taking the first byte of File1 and then the first byte of File2 etc. it will actually be carving out musical content that is supposed to be in beat with each other. Without this padding technique, the joined files would always be slightly out of time.” [76] Thus Williams does not teach how to play an accompaniment track in accordance to the beat start of the primary track when the primary track is already playing. The general novelty of the present invention includes the ability to start playing a slave (accompaniment) track during the master (primary) track is playing. This start of playing is not done automatically as a “play” is pressed or requested, but is automatically started at the nearest beat-start of the master (primary) track.

The last O.A. notes that Williams’ system does the following

1. teaches a slave or accompaniment track plays in accordance to the beat start of a master or primary track.

However Williams system does not teach how a slave or accompaniment track plays in accordance to the beat start of a master or primary track while the master or primary track is already playing. Williams system does not allow the automatic start of play of a slave track anytime during playing of a master track in a manner that synchronizes them together automatically.

**Williams system does not teach how to play a slave or accompaniment track in accordance to the beat start where playing of a slave track initiates during playing of primary track**

With regards to Williams playing of a slave or accompaniment track in accordance to the beat start of a master or primary track Williams specifically states a padding made at the

beginning of the accompaniment track to match the primary track “This unique padding of the front portion of the file means that the attached music is pushed back by a factor of 100,150,200 etc milliseconds. Pushing this music back by the appropriate amount allows it to be synchronized to the primary track which always remains unchanged.” 76.

Furthermore Williams specifically states that the mixing takes place from the first byte of the primary track: “Therefore when the server side mixing software goes about its job of taking the first byte of File1 and then the first byte of File2 etc.” [76] Williams does not teach how to initiate a slave (or accompaniment) track from somewhere within the primary track in a manner that the master and slave track will be synchronized. This feature is possible with the present invention and is claimed by claim 37. Claim 37 has a novel feature of initiating the playing of a slave track while the primary track is already playing. This initiation is automatically coupled to the closest beat start of the master segment mixer currently playing. This capability shows novelty over Williams.

Thus applicant submits that the invention is much more than merely adjusting an accompanied track to start play at the beginning of a primary track and that claim 37 clearly recites novel physical subject matter which is distinguished over Williams.

**Williams’s system does not teach how to play a slave or accompaniment track in accordance to the beat start where playing of a slave track initiates during playing of primary track where slave track is of a different BPM to primary track**

In addition to the above reasons, where Williams system does not teach how to play a slave or accompaniment track in accordance to the beat start where playing of a slave track initiates during playing of primary track, Williams’s system does not couple two different playing tracks with different BPM rates. This feature is possible with the present invention and is claimed by claim 35 which 37 is dependent over. Claim 37 has a novel feature of initiating the playing of a slave track while the primary track is already playing. This initiation is automatically coupled to the closest beat start of the master segment mixer currently playing as well as matching the BPM of the playing slave track to the BPM of the master track. This capability shows novelty over Williams.

Thus applicant submits that the invention is much more than merely adjusting an accompanied track to start play at the beginning of a primary track and that claim 37 clearly recites novel physical subject matter which is distinguished over Williams.

**These novel physical features of claim 37 produce new and unexpected results and hence unobvious and patentable over this reference.**

Also applicant submits that the novel features of the automatic start of play of a slave track during the playing of a master track at the beat start of the master track following a user request of claims 37 is also unobvious and hence patentable under § 103 since it produces new and unexpected results over Williams.

New and unexpected results are made with the ability that allows a user to start playing a slave track any time during the playing of a master track with the feature that the master and slave tracks are played synchronized to one another from the start and during the playing of the track.

The last O.A. rejected claim 4 as being anticipated by US patent application publication to Barry (US 2005/0025320).

#### **The Rejection Of Claim 4, On Barry Is Overcome**

The last O.A. rejected independent claim 4 on Barry. Claim 4, has been rewritten as new claims 23-26, to define patentably over this reference. Applicant requests reconsideration of this rejection, as now applicable claims 23-26, for the following reasons:

1. Barry's method does not allow the dynamic creation of a track made up of sequentially playing dynamically chosen segments.
2. Barry's method does not supply a dynamic synchronization means for playing dynamically chosen segments in sequence.

3. Barry's system does not include the ability to dynamically play track segments at the same BPM.
4. These novel physical features of claim 23-26 produce new and unexpected results and hence unobvious and patentable over this reference

#### **The References And Differences Of The Present Invention Thereover**

Prior to discussing the claims and the above five points, applicant will first discuss the reference and general novelty of the present invention and its unobviousness over the reference.

**Barry** teaches a system and method which allows users to intervene during a mix by the activation of control members assigned to interactive multimedia apparatus. The parameters, controls and effects assigned to detected control members are applied to the mix in real time.[see 80]. Barry teaches a method to "allow users to configure, define and place their loops, riffs, beats, one shots, video-clips, microphone inputs etc. in tracks along the time axis ruler to be mixed at that time in the mixing cycle.[61]. However Barry does not teach a method to sequentially play track segments one right after the other, in a manner that when chosen dynamically, will be played exactly one following the other. The dynamic user intervention offered by Barry lets users apply sounds within the playing of a track, but these sounds are not synchronized with other playing segments, either to play consecutively following other segments or to match other segment's playing beat (or tempo). Barry offers an ability to place segments consecutively along the time axis ruler within a static mix pictogram, but this mix pictogram is static regarding segments already contained in it. Barry does not present how to synchronize dynamically chosen played segments one consecutively with the other, nor does Barry present how to automatically beat-mix or synchronize segments dynamically.

The last O.A. notes that

1. Barry teaches a method for mixing track segments during play.

2. Barry teaches the playing and mixing of segments according to present instructions,
3. Barry teaches the ability to modify present instructions and the play order on the time axis of these segments.
4. Barry teaches the ability to check through visual display the present instructions for segments further down the time axis of the track.

However Barry's method for mixing during play does not allow to dynamically choose segments to play and to play them sequentially, exactly one after the other with no overlaps or gaps. Furthermore, Barry does not teach how to synchronize playing of dynamically chosen segments to other segments. Barry teaches the ability to modify present instructions and play order of segments on a time axis, however this presentation, is a static presentation for the segments already appearing on it. Barry teaches the ability to check through visual display the present instructions for segments further down the time axis of the track, but lacks the ability to dynamically modify the order of segments already on it during play.

**Barry's method does not allow the dynamic creation of a track made up of sequentially playing dynamically chosen segments**

With regards to Barry's method for creating a track during play, Barry's method allows users to intervene during a mix by the activation of control members assigned to interactive multimedia apparatus. The parameters, controls and effects assigned to detected control members are applied to the mix in real time.[see 80]. Barry teaches a method to "allow users to configure, define and place their loops, riffs, beats, one shots, video-clips, microphone inputs etc. in tracks along the time axis ruler to be mixed at that time in the mixing cycle.[61]. However Barry does not teach a method to sequentially play track segments one right after the other, in a manner that when chosen dynamically, will be played exactly one following the other. The dynamic user intervention offered by Barry lets users apply sounds within the playing of a track, but these sounds are not synchronized with other playing segments, to play consecutively following the playing

segment. Barry offers an ability to place segments consecutively along the time axis ruler within a static mix pictogram, but this mix pictogram is static regarding segments already contained in it. Barry does not teach how to synchronize dynamically played segments one with the other. However this invention teaches a method for dynamically choosing segments during play and playing them consecutively one after the other without overlaps or gaps. This method is claimed in claim 23 and 24. Claim 23 has a novel feature of sequentially playing dynamically chosen track segment during play in a sequentially manner. Claim 24 further specifies this sequential playing has no gaps or overlaps between played segments. This capability shows novelty over Barry.

Thus applicant submits that the invention is much more than merely dynamic playing of track segments during playing of a track. Also the invention is much more than placing sound segments along a time axis ruler of a pictogram statically. Claim 23 and 24 therefore clearly recites novel physical subject matter which is distinguished over Barry.

**Barry's method does not supply a dynamic synchronization means for playing dynamically chosen segments in sequence**

With regards to Barry's method for creating a track during play, Barry's method allows users to intervene during a mix by the activation of control members assigned to interactive multimedia apparatus. The parameters, controls and effects assigned to detected control members are applied to the mix in real time.[see 80]. Barry teaches a method to "allow users to configure, define and place their loops, riffs, beats, one shots, video-clips, microphone inputs etc. in tracks along the time axis ruler to be mixed at that time in the mixing cycle.[61]. However Barry does not teach a method to synchronize dynamically chosen segments to be played one right after the other. The dynamic user intervention offered by Barry lets users apply sounds within the playing of a track, but these sounds are not synchronized with other playing segments, to play consecutively following the playing segment. Barry offers an ability to place segments consecutively along the time axis ruler within a static mix pictogram, but this mix pictogram is static regarding segments already contained in it. Barry does not teach how to synchronize

dynamically played segments one with the other. However this invention teaches a method for dynamically choosing segments during play and playing them consecutively one after the other in a synchronized manner, without overlaps or gaps. This method is claimed in claim 23 and 24. Claim 25 has a novel feature of including a default order of segments as a starting point for dynamic changing of segment played sequence during play. This capability shows novelty over Barry.

Thus applicant submits that the invention is much more than merely dynamic playing of track segments during playing of a track. Also the invention is much more than placing sound segments along a time axis ruler of a pictogram statically. Claim 23, 24 and 25 therefore clearly recites novel physical subject matter which is distinguished over Barry.

**Barry's system does not include the ability to dynamically play track segments at the same BPM**

With regards to Barry's method for creating a track during play, Barry's method allows users to intervene during a mix by the activation of control members assigned to interactive multimedia apparatus. The parameters, controls and effects assigned to detected control members are applied to the mix in real time.[see 80]. Barry teaches a method to "allow users to configure, define and place their loops, riffs, beats, one shots, video-clips, microphone inputs etc. in tracks along the time axis ruler to be mixed at that time in the mixing cycle.[61]. However Barry does not teach a method to sequentially play track segments one right after the other, in a manner that when chosen dynamically, will be played exactly one following the other and synchronized to the same BPM. The dynamic user intervention offered by Barry lets users apply sounds within the playing of a track, but these sounds are not synchronized with other playing segments, either to play consecutively following other segments or to match other segment's playing beat (or tempo). Barry offers an ability to place segments consecutively along the time axis ruler within a static mix pictogram, but this mix pictogram is static regarding segments already contained in it for their starting location and their tempo. Barry does not present how to synchronize dynamically played segments one with the other, nor does Barry present how

to set the tempo of the segments to play at the same BPM. Claim 26 has a novel feature of playing dynamically chosen track segments sequentially at the same BPM. This capability shows novelty over Barry.

Thus applicant submits that the invention is much more than merely dynamic playing of track segments during playing of a track. Also the invention is much more than placing sound segments along a time axis ruler of a pictogram statically. Claim 26 therefore clearly recites novel physical subject matter which is distinguished over Barry.

**These novel physical features of claim 23-26 produce new and unexpected results and hence unobvious and patentable over this reference**

Also applicant submits that the novel features of the method to consecutively play track segments of claims 23-25 and the playing of track segments consecutively at the same tempo of claim 26 are also unobvious and hence patentable under § 103 since it produces new and unexpected results over Barry.

New and unexpected results are made with the ability that allows a user to dynamically manipulate the track being played by changing segment order of the played track. Track segments are played sequentially one after the other with no gaps or overlaps to appear to the listener as one single track being played.

#### **The specification objected to under § 103**

#### **Rejection of Claims 2,3 On Williams and Laroche are overcome**

The last O.A. rejected dependent claims 2,3 on Williams in view of Laroche. Dependent claims 2,3 are now dependent claim 22.

Laroche's invention relates to the fields of tempo and beat detection where the tempo and the beat of an input audio signal is automatically detected.

Williams's invention is described above in Claim 1 rejection overcome.

The last O.A. noted Williams teaches all the above claimed elements as stated in claim 1, except for the track files starting and ending on a beat before the next file or segment starts, and the track comprising a certain tempo denoting the beats the track contains. Laroche teaches these beat and tempo applications. The last O.A. further states that it would have been obvious to one of ordinary skill in the art to incorporate the tempo and downbeat apparatus and method of Laroche into the mixing apparatus of Williams in order to automatically detect the tempo and downbeat of the incoming segment from the database as to make it easier to place that track segment in the appropriate location on the track time axis, therefore making it easier to use the segment building blocks to form a more organized and smoothly transitioned track.

However the combination of Williams and Laroche solves a different problem to the claim 22. The combination of Williams and Laroche assuming it were possible, would play tracks simultaneously with one another and somehow match the tempo of the two or more different playing tracks to play smoothly. However the claim 22 of the present invention solve the problem of sequentially playing track segments chose dynamically one after the other with no gaps or overlaps so that the transition between segments sounds smooth and natural to the listener. This transition is made possible with the slicing of the segments according to claim 22. This is a different problem to the Williams and Laroche's assumed combination.

Furthermore, the combination of Williams and Laroche is lacking claimed features. These are: a track segmentor to cut the track into sub sections according to time; a means to play track segments sequentially one each time during play; a track database with track segments prepared to be played in sequence.

The present invention does accomplish the lacking items. With the segment slicing specified in claim 22 this invention allows the sequential playing of track segments chosen dynamically one after the other with no gaps or overlaps so that the transition between segments sounds smooth and natural to the listener. The novel features of applicant's system which erect these differences are, as stated, clearly recited in claim 22.

**Rejection of Claims 8, 9 On Williams and Laroche are overcome**

The last O.A. rejected dependent claims 8,9 on Williams in view of Laroche. Dependent claims 8,9 are now dependent claims 30 and 31.

Laroche's invention relates to the fields of tempo and beat detection where the tempo and the beat of an input audio signal is automatically detected.

Williams's invention is described above in Claim 7 rejection overcome.

The last O.A. noted Williams teaches all the above claimed elements as stated in claim 7, except for the track files starting and ending on a beat before the next file or segment starts, and the track comprising a certain tempo denoting the beats the track contains. Laroche teaches these beat and tempo applications. The last O.A. further states that it would have been obvious to one of ordinary skill in the art to incorporate the tempo and downbeat apparatus and method of Laroche into the method of Williams.

However the combination of Williams and Laroche solves a different problem to the claims 30 and 31. The combination of Williams and Laroche assuming it were possible, would represent tracks to be played simultaneously with each other and not track segments to be played consecutively. Williams does not solve ordering problems of segments or default ordering of segments which this invention does. Furthermore the representation of primary/accompanied track is not relevant for this invention and is compulsory in Williams's representation. See more information in "The Rejection Of Claim 7 On Williams Is Overcome" section. The problems solved by this invention are

the representation of a track by track segments cut from a track according to time, and which have a default order which may be changed. This is presented in claims 30 and 31.

Furthermore, the combination of Williams and Laroche is lacking claimed features. These are: track segments representation of being track cut into parts according to time; a default playing order of such segments. The present invention does accomplish the lacking items. With the track segment representation in claims 30 and 31 this invention allows the building blocks and basis to sequential playing of track segments chosen dynamically one after the other with no gaps or overlaps so that the transition between segments sounds smooth and natural to the listener. The novel features of applicant's system which erect these differences are, as stated, clearly recited in claims 30 and 31.

#### **Rejection of Claims 5, 6 On Barry and Laroche are overcome**

The last O.A. rejected dependent claims 5,6 on Barry in view of Laroche. Dependent claims 5,6 are now dependent claims 27 and 28.

Laroche's invention relates to the fields of tempo and beat detection where the tempo and the beat of an input audio signal is automatically detected.

Barry's invention is described above in Claim 4 rejection overcome.

The last O.A. noted Barry teaches all the above claimed elements as stated in claim 4, except for the track files starting and ending on a beat before the next file or segment starts, and the track comprising a certain tempo denoting the beats the track contains. Laroche teaches these beat and tempo applications. The last O.A. further states that it would have been obvious to one of ordinary skill in the art to incorporate the tempo and downbeat apparatus and method of Laroche into the multi-media apparatus of Barry in order to automatically detect tempo and downbeat of the present track segments on the already present visual display of Barry, and to further make it easier to place these separate track files in the appropriate location on the track time axis in relation to each

other, therefore making it easier to use these building blocks to form a more organized and smoothly transition track.

However the combination of Barry and Laroche solves a different problem to the claims 27 and 28. The combination of Barry and Laroche assuming it were possible, would allow a method to place segments on a static visual time axis. The present invention introduces a method for the dynamic creation of a track made up of sequentially playing dynamically chosen segments which this proposed combination does not present.

More information regarding Barry's method and relevant novelty of this method over Barry can be found in "The Rejection Of Claim 4 On Barry Is Overcome" section. The problem solved by this invention is a method to dynamically choose track segments to be played dynamically in sequence. This is presented in claims 27 and 28.

Furthermore, the combination of Barry and Laroche is lacking claimed features. These are: dynamically choosing to track segments to be played sequentially to create a track; supply a dynamic synchronization means for playing dynamically chosen segments in sequence; the ability to dynamically play track segments at the same BPM. The present invention does accomplish the lacking items. With the method represented in claims 27 and 28 this invention allows these features. The novel features of applicant's system which erect these differences are, as stated, clearly recited in claims 27 and 28.

#### **Rejection of Claims 14, 15 On Williams and Windle are overcome**

The last O.A. rejected dependent claims 14,15 on Williams in view of Windle. Dependent claims 14,15 are now dependent claims 38 and 39.

Windle's invention presents a synchronization between beat and video.  
Williams's invention is described above in Claim 1 rejection overcome.

The last O.A. noted Williams teaches all the above claimed elements as stated in claim 12, except for the master or primary track beat information being exported to an external device and that device being a video projection in synch the beat of the music. Windle does however teach this synchronization of beat and video. The last O.A. further states that it would have been obvious to one of ordinary skill in the art to incorporate the similar techniques of beat synchronization of both Williams and Windle.

However the combination of Williams and Windle, had it been possible, is lacking claimed features. These features are described in “The Rejection Of Claim 12, On Williams Is Overcome” section. The dynamic properties of beat rates stated in that section are presented by this invention in claims 14 and 15.

#### **Rejection of Claims 16 On Williams and Windle and Marx are overcome**

The last O.A. rejected dependent claim 16 on Williams in view of Windle and Marx claim 16 is now dependent claim 40.

Windle’s invention presents a synchronization between beat and video.  
Williams’s invention is described above in Claim 1 rejection overcome.

The last O.A. noted Williams and Windle teaches all the above claimed elements as stated in claim 12 and 14, except for the external device that receives the beat information being lighting effects in synchronization with the beat. Marx discloses knowledge of an external device such as light synchronization to the beat of music. The last O.A. further states that it would have been obvious to one of ordinary skill in the art to incorporate these techniques with both Williams and Windle.

However the combination of Williams, Windle and Marx, had it been possible, is lacking claimed features. These features are described in “The Rejection Of Claim 12, On Williams Is Overcome” section. The dynamic properties of beat rates stated in that section are presented by this invention in claims 40.

### **Prior Art Made Of Record To Herberger**

The last O.A. noted prior art made of record and not relied upon and is considered pertinent to applicant's disclosure. US patent application to Herberger.

In regards to US patent application to Herberger, Herbreger presents a method of defining and storing remixing of existing musical and video works. Herberger teaches a method of defining and storing remixes of existing musical works which provides a more compact method of storing such a remix and one which is independent of the underlying song from which the remix was constructed. According to a first preferred embodiment, there is provided a method of storing digital remixes that begins with the selection of a song to be remixed. As a next step, various segments of the song are identified, preferably in terms of their starting time and ending time. Each of these segments will be used as a "loop" or discrete sound component in the next step. It should be noted that the length of each loop might be only a few digital samples, or the length of the entire song. Obviously, the loops might be selected by the user or predefined. [see 11, 12]

Herberger explains the use of these loops as follows: "Given the defined loops which have been extracted from the original song, the user next creates a remix of the selected song. This might be done in many ways, but a first preferred method would be to allow the user to manually select the time-position of each of the loops according to his or her preference. Or, alternatively, the user might interactively create his or her own composition in real time by "playing" each loop at the time it is to appear in the new mix" [13]

Herberger describes the creation of the track in [14]: "a user may place each of the defined loops at any time position he or she might desire in creating the remixed work and, of course, many variations are possible" and continues: "In another preferred

arrangement, the user will be constrained in the placement of his or her loops so that the resulting remix is "harmonious" according to some standard"

Herberger describes dealing with loops of different BPM in [45]: "In those sorts of cases, the loops in question would preferably be mathematically stretched or compressed to cause the various BPM's to all match. Methods of doing so are generally well known to those of ordinary skill in the art"

In view of independent claim 18 and dependent claims 19-20, Herberger's presented method does not teach how to play track segments or loops consecutively one each time with no gaps or overlaps where the loops are chosen during play, thus allowing to compose a track from loops in real time. Furthermore, Herberger does not present a means to do so.

In view of independent claim 34 and dependent claim 35, Herberger does not teach a method to couple (or simultaneously play) different loops with different BPM during play where loops with different BPM rates may be chosen in real-time to be played simultaneously.

In view of independent claim 23 and claims 24-26, Herberger does not teach a method to dynamically synchronize dynamically chosen loops to be played in sequence, with no gaps or overlaps. Furthermore, Herberger does not teach how to dynamically play track segments at the same BPM which may be chosen dynamically, even when track loops contain different BPM.

In view of independent claim 29, Herberger's loop presentation represents a remix file and not an original track loops as presented by the present invention. In paragraph [40] it states specifically: "This is the sort of information that would preferably be stored in a data file that defines the remix". Herberger presents loops to form a remix where the remix information is stored together as a remix file while the present invention presents a track as a collection of loops to form building blocks for the creation of tracks.

In Herberger presented Table 1 (page 3) and Table 2 (page 4) loop information of a specific remix is presented. This information is specific information for a specific remix and is not information that comes along with a track to be used for loop building blocks. These tables are presented in by Herberger to solve the problem of conserving disk space. The present invention solves a different problem, which is to supply track building blocks to be used for live performances including default order. According to the present invention, loop information is available with each track as input for live manipulation. With this information a track can be altered live and be played in a beat-mix with other tracks automatically.

Thus applicant submits that the invention solves different problems and that the present invention solves problems not handles by this invention and that the appended new claims clearly recites novel physical subject matter which is distinguished over Herberger.

#### **Prior Art Made Of Record To Becker**

The last O.A. noted prior art made of record and not relied upon and is considered pertinent to applicant's disclosure. US patent application to Becker.

In regards to US patent application to Becker, the object of the invention is to provide a method and a music player, which allow automatic production of musical scratch effects. [6] Thus this invention solves a different problem than the present invention.

Thus applicant submits that the invention solves different problems and that the present invention solves problems not handles by this invention and that the appended new claims clearly recites novel physical subject matter which is distinguished over Becker.

## **Conclusion**

For all of the above reasons, applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore applicant submits that this application is now in condition for allowance, which action applicant respectfully requests.

## **Conditional Request For Constructive Assistance**

Applicant has amended the specification and claims of this application so that they are proper, definite and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P § 2173.02 and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,



Noam Camiel

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**Certificate of Mailing:** I hereby certify that this correspondence, and attachments, if any, will be deposited with the Israeli Postal Service by First Class Mail, postage prepaid, in an envelope addressed to "Box Non-Fee Amendments, Commissioner for Patents, P.O.Box 1450, Alexandria, VA 22313-1450 USA" on the date below:

Date: 18th of December 2005

Inventor's Signature:



Noam Camiel, Applicant

**Attachment: Appendix to Amendment A With Replacement Paragraphs Marked-Up to Indicate Changes**



**Appendix to Amendment A**  
**With Replacement Paragraphs Marked-Up to Indicate Changes**

Commissioner for Patents  
VA, Alexandria, 22313-1450

Sir:

Pursuant to Rule 121, the following is a copy of all of the paragraphs amended by the attached Amendment A, with all the changes indicated:

*Page 4, paragraph [0079], replace first sentence with the following:*

--Reference is now made to Fig. 5, a schematic illustration of an exemplary embodiment of a segment controller comprising a segment controller 501, segment number 502, segment status 503, a play mode switch 504, a progress indicator 508 and beat duration 509.

*Page 4 paragraph [0079], replace the sentence that begins “In play mode “loop”... ” with the following:*

--In play mode “loop” the segment may be repeated N times.

*Page 5 paragraph [0088], replace first sentence with the following:*

-- In step 713 a check is conducted, whether any segment is left to play.